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COMBINED CYCLE IN FUEL CELL GENERATION UNIT

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ABSTRACT

PURPOSE: To improve all-round efficiency of a fuel cell set by effectively using heat energy such as an exhaust on the anode- and cathode sides of the fuel cell proper and reaction heat of the fuel cell proper being emitted outside of a system of a fuel cell generation unit in a phosphate electrolyte fuel cell.

CONSTITUTION: Reaction heat generated by electrochemical reaction in a fuel cell proper 5 is absorbed by cooling water in a fuel cell cooler 23, and heated cooling water (hot water) is introduced into a steam generator 10 to be separated into steam and hot water. Hot water from the steam generator 10 is introduced into a frongas vaporizer 28 to heat frongas to be used for a frongas turbine 30 through a frongas control valve 29 to drive the frongas turbine 30 for generating electricity through a turbine generator 31. The frongas, which drove the frongas turbine 30 exchanges heat with external cooling water in a frongas condenser 32 to be recycled to the frongas vaporizer 28.

